

We claim:

1. A concrete finishing trowel comprising:
  - a drive means having extending therefrom a drive shaft, said drive shaft connecting with
  - and configured to rotate a rotatable blade assembly;
  - a rotatable blade assembly adapted to finish a concrete surface, said rotatable blade assembly having a generally vertical axis of rotation and a plurality of radially spaced apart concrete finishing blades extending outwardly from said vertical axis for frictionally contacting said concrete surface, said blades each defining a longitudinal axis generally perpendicular to said vertical axis;
  - a pitch controller for varying the pitch of said blades by rotating them about their longitudinal axis, said pitch controller utilizing the rotation of said drive shaft to rotate said blades about their longitudinal axis; and,
  - a clutch for selectively engaging and disengaging said pitch controller.
2. The trowel of claim 1, wherein said pitch controller comprises a thrust collar, said thrust collar having a plate configured to bear downwardly on said rotatable blade assembly thereby varying the pitch of said blades by rotating them about their longitudinal axis.

3. The trowel of claim 2, wherein said thrust collar further comprises a hollow shaft able to receive said drive shaft therethrough, said hollow shaft having an exterior surface, said exterior surface threaded.
4. The trowel of claim 3, wherein said pitch controller further comprises a nut, said nut configured for threading onto said thrust collar exterior surface, said nut having an upper surface.
5. The trowel of claim 4, wherein said pitch controller further comprises a bearing configured to support a drive means lower surface on said nut upper surface.
6. The trowel of claim 5, wherein said nut can be threaded in a first direction on said thrust collar and towards said thrust collar plate, and wherein said nut can be threaded in an opposite, second direction on said thrust collar and away from said thrust collar plate.
7. The trowel of claim 6, wherein travel in said first direction results in a reduction in the degree of downward bearing upon said rotatable blade assembly by said thrust collar plate thereby resulting in a decrease in pitch.

8. The trowel of claim 7, wherein travel in said second direction results in an increase in the degree of downward bearing upon said rotatable blade assembly by said thrust collar plate thereby resulting in an increase in pitch.

9. The trowel of claim 8, wherein said drive means drives said drive shaft thereby rotationally driving said thrust collar and said rotatable blade assembly.

10. The trowel of claim 9, wherein said clutch is configured to stop said nut while said drive means is driving thereby resulting in travel in said second direction and moving said thrust collar away from said nut.

11. The trowel of claim 10, wherein said clutch is configured to transmit the rotation of said thrust collar to achieve travel in said second direction thereby drawing the thrust collar nearer said nut.

12. A concrete finishing trowel comprising:

a drive means having extending therefrom a drive shaft, said drive shaft connecting with  
and configured to rotate a rotatable blade assembly;

a rotatable blade assembly adapted to finish a concrete surface, said rotatable blade  
assembly having a generally vertical axis of rotation and a plurality of radially  
spaced apart concrete finishing blades extending outwardly from said vertical axis  
for frictionally contacting said concrete surface, said blades each defining a  
longitudinal axis generally perpendicular to said vertical axis;

a pitch controller for varying the pitch of said blades by rotating them about their  
longitudinal axis, said pitch controller utilizing the rotation of said drive shaft to  
rotate said blades about their longitudinal axis, said pitch controller comprising a  
thrust collar, a nut, and a bearing;

said thrust collar comprising a plate configured to bear downwardly on said rotatable  
blade assembly thereby varying the pitch of said blades by rotating them about  
their longitudinal axis, said thrust collar further comprising a hollow shaft able to  
receive said drive shaft therethrough, said hollow shaft having an exterior surface,  
said exterior surface threaded;

said nut configured for threading onto said thrust collar exterior surface, said nut having  
an upper surface; and

said bearing configured to support a drive means lower surface on said nut upper surface;

and

a clutch for selectively engaging and disengaging said pitch controller.

13. The trowel of claim 12, wherein said nut can be threaded in a first direction on said thrust collar and towards said thrust collar plate, and wherein said nut can be threaded in an opposite, second direction on said thrust collar and away from said thrust collar plate.

14. The trowel of claim 13, wherein travel in said first direction results in a reduction in the degree of downward bearing upon said rotatable blade assembly by said thrust collar plate thereby resulting in a decrease in pitch.

15. The trowel of claim 14, wherein travel in said second direction results in an increase in the degree of downward bearing upon said rotatable blade assembly by said thrust collar plate thereby resulting in an increase in pitch.

16. The trowel of claim 15, wherein said drive means drives said drive shaft thereby rotationally driving said thrust collar and said rotatable blade assembly.

17. The trowel of claim 16, wherein said clutch is configured to stop said nut while said drive means is driving thereby resulting in travel in said second direction and moving said thrust collar away from said nut.

18. The trowel of claim 17, wherein said clutch is configured to transmit the rotation of said thrust collar to achieve travel in said second direction thereby drawing the thrust collar nearer said nut.

19. A concrete finishing trowel comprising:

a drive means having extending therefrom a drive shaft, said drive shaft connecting with  
and configured to rotate a rotatable blade assembly;

a rotatable blade assembly adapted to finish a concrete surface, said rotatable blade  
assembly having a generally vertical axis of rotation and a plurality of radially  
spaced apart concrete finishing blades extending outwardly from said vertical axis  
for frictionally contacting said concrete surface, said blades each defining a  
longitudinal axis generally perpendicular to said vertical axis;

a pitch controller for varying the pitch of said blades by rotating them about their  
longitudinal axis, said pitch controller utilizing the rotation of said drive shaft to  
rotate said blades about their longitudinal axis, said pitch controller comprising a  
thrust collar, a nut, and a bearing;

said thrust collar comprising a plate configured to bear downwardly on said rotatable  
blade assembly thereby varying the pitch of said blades by rotating them about  
their longitudinal axis, said thrust collar further comprising a hollow shaft able to  
receive said drive shaft therethrough, said hollow shaft having an exterior surface,  
said exterior surface threaded;

said nut configured for threading onto said thrust collar exterior surface, said nut having  
an upper surface;

said bearing configured to support a drive means lower surface on said nut upper surface;

and

a clutch for selectively engaging and disengaging said pitch controller;

wherein said nut can be threaded in a first direction on said thrust collar and towards said

thrust collar plate, and wherein said nut can be threaded in an opposite, second

direction on said thrust collar and away from said thrust collar plate;

wherein travel in said first direction results in a reduction in the degree of downward

bearing upon said rotatable blade assembly by said thrust collar plate thereby

resulting in a decrease in pitch;

wherein travel in said second direction results in an increase in the degree of downward

bearing upon said rotatable blade assembly by said thrust collar plate thereby

resulting in an increase in pitch;

wherein said drive means drives said drive shaft thereby rotationally driving said thrust

collar and said rotatable blade assembly;

wherein said clutch is configured to stop said nut while said drive means is driving

thereby resulting in travel in said second direction and moving said thrust collar

away from said nut; and

wherein said clutch is configured to transmit the rotation of said thrust collar to achieve

travel in said second direction thereby drawing the thrust collar nearer said nut.